

Claims

1. A honeycomb filter for trapping particulate matter contained in dust-containing fluid,

5 the filter comprising a number of through-holes surrounded by partition walls and extending in an axial direction,

 the partition walls having filterability, predetermined through-holes being plugged at one end,
10 remaining through-holes being plugged at the other end,

 wherein in a section of the honeycomb filter perpendicular to the axial direction, heat capacity in a central part of the honeycomb filter is higher than that in a peripheral part of the honeycomb filter.

15 2. The honeycomb filter according to claim 1, wherein in an end face of the honeycomb filter in the axial direction, a non-plugged through-hole end portion is plugged in the central part of the honeycomb filter.

 3. The honeycomb filter according to claim 1, wherein
20 in the section of the honeycomb filter perpendicular to the axial direction, a thickness of the partition wall in the central part is set to be larger than that of the partition wall in the peripheral part.

 4. The honeycomb filter according to claim 1, wherein
25 in the section of the honeycomb filter perpendicular to the axial direction, a cell density in the central part is set to be larger than that in the peripheral part.

 5. The honeycomb filter according to claim 1, wherein the plugging is performed in the honeycomb filter such that

a plugging depth is large in the central part, and small in the peripheral part, so that a heat capacity in the central part of the honeycomb filter is set to be larger than that in the peripheral part.

5 6. A honeycomb filter for trapping particulate matter contained in dust-containing fluid,

the filter comprising a number of through-holes surrounded by partition walls and extending in an axial direction,

10 the partition walls having filterability, predetermined through-holes being plugged at one end, remaining through-holes being plugged at the other end,

wherein the honeycomb filter comprises an assembly of a plurality of honeycomb segments, and

15 in a section of each honeycomb segment perpendicular to the axial direction, a heat capacity of a central part of the honeycomb filter is higher than that of a peripheral part of the honeycomb filter.

20 7. The honeycomb filter according to claim 6, wherein the honeycomb filter comprises a plurality of the honeycomb segments bonded by a bonding material, and

in a section of the honeycomb filter perpendicular to the axial direction, a thickness of the partition wall of the honeycomb segment positioned in a central part of the
25 honeycomb filter is set to be larger than that of the partition wall of the honeycomb segment positioned in a peripheral part.

8. The honeycomb filter according to claim 7, wherein the thickness of the partition wall in the central part of

the honeycomb segment is set to 1.02 to 1.5 times that of the partition wall in the peripheral part of the honeycomb segment.

9. The honeycomb filter according to any one of
5 claims 6 to 8, wherein in the section of the honeycomb filter perpendicular to the axial direction, a sectional area of the central part of the honeycomb segment is set to 90% or less of that of the whole honeycomb segment.

10. The honeycomb filter according to any one of
10 claims 7 to 9, wherein in the section of the honeycomb filter perpendicular to the axial direction, the thickness of the partition wall is gradually reduced toward the peripheral part from the central part with respect to some or all of the partition walls of the honeycomb segment.

15 11. The honeycomb filter according to any one of claims 6 to 10, wherein the honeycomb filter comprises a plurality of the honeycomb segments bonded by a bonding material, and

in the section of the honeycomb filter perpendicular
20 to the axial direction, the bonding material of the honeycomb segment positioned in a central part of the honeycomb filter is formed to be thicker than that of the honeycomb segment positioned in a peripheral part.

12. The honeycomb filter according to any one of
25 claims 6 to 11, wherein the honeycomb filter comprises a plurality of the honeycomb segments bonded by a bonding material, and

in the peripheral part in the section of the honeycomb filter perpendicular to the axial direction, a thermal

conductivity of the honeycomb segment positioned in the central part of the honeycomb filter is higher than that of the honeycomb segment positioned.

13. The honeycomb filter according to any one of
5 claims 6 to 12, wherein the plugging is performed in the honeycomb segment constituting the honeycomb filter such that a plugging depth is large in the central part of the honeycomb segment, and small in the peripheral part, so that a heat capacity of the central part of the honeycomb filter
10 is set to be larger than that of the peripheral part.

14. The honeycomb filter according to any one of claims 1 to 13, wherein a material of the filter contains one selected from the group consisting of SiC, Si₃N₄, alumina, mullite, aluminum titanate, zirconium phosphate,
15 and lithium aluminum silicate as a main crystal phase.

15. The honeycomb filter according to any one of claims 1 to 14, wherein a sectional shape of the through-hole is any of a triangle, a tetragon, a hexagon and a corrugated shape.

20 16. The honeycomb filter according to any one of claims 6 to 15, wherein the honeycomb segment carries a catalyst.

17. The honeycomb filter according to claim 16, wherein the catalyst contains at least one selected from the
25 group consisting of Pt, Pd, Rh, K, Li, and Na.